

01/22/14 Agenda

- Chapter 6 Retake
 - Remediation Packet is posted on my web site, you have until 1/28 to turn it in.
- Group Activity - Discovering Pythagoras
- Section 7.1 & 7.2 - The Pythagorean Theorem & its' Converse
- Homework - Worksheet 1 - The Pythagorean Theorem

Name: _____

Date: _____

Period: _____

BM 13: Pythagoras

Set	Small ↓		Small ↓		Large ↓		Type of Triangle?
	Side	Area	Side	Area	Side	Area	
1	5	25	6	36	8	64	ACUTE
2	13	169	15	225	16	256	ACUTE
3	2	4	12	144	13	169	OBTUSE
4	8	64	14	196	16	256	OBTUSE
5	5	25	12	144	13	169	RIGHT
6	3	9	4	16	5	25	RIGHT
7							
8							
9							
10							
11							
12							
13							
14							
15							

Conclusions:

When a triangle is acute:

When a triangle is right:

AREA OF SMALL SIDES ADDS UP TO
AREA OF LARGE
SIDE

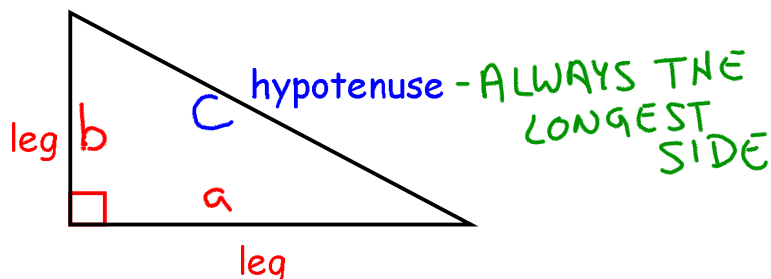
When a triangle is obtuse:

Translated to mathematics

Section 7.1 - Pythagorean Theorem & it's converse

Target 7A

Terms we need to know when referring to right triangles:



The Pythagorean Theorem states:

In a right triangle, the square of the length of the hypotenuse is equal to the sum of the squares of the lengths of the legs.

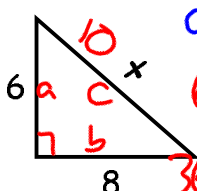
Mathematically:

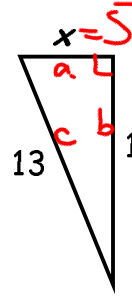
$$(\text{hypotenuse})^2 = (\text{leg})^2 + (\text{leg})^2$$

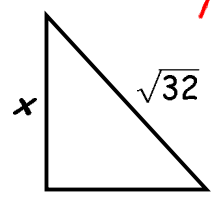
We shorten this to $a^2 + b^2 = c^2$

where a and b are the legs and c is the hypotenuse.

Find the length of the unknown side (assume right triangles):

1.  $a^2 + b^2 = c^2$
 $6^2 + 8^2 = c^2$
 $36 + 64 = c^2$
 $100 = c^2$
 $\sqrt{100} = \sqrt{c^2}$
 $10 = c$

2.  $a^2 + b^2 = c^2$
 $x^2 + 12^2 = 13^2$
 $x^2 + 144 = 169$
 $x^2 = 25$
 $\sqrt{x^2} = \sqrt{25}$
 $x = 5$

3. 

Section 7.2 - Converse to The Pythagorean Theorem

Converse of the Pythagorean Theorem:

If the square of the length of the longest side of a triangle is equal to the sum of the squares of the lengths of the other two sides, then the triangle is a right triangle.

If $a^2 + b^2 = c^2$, then the triangle is a right triangle.

Also associated with the converse of the Pythagorean Theorem are these two theorems:

If $a^2 + b^2 > c^2$, then the triangle is an acute triangle.

If $a^2 + b^2 < c^2$, then the triangle is an obtuse triangle.

What type of triangles do these sides form?

a.) 9, 40, 41

b.) 3, 4, 5

c.) 4, 8, 9

d.) 7, 8, 14

e.) 1, 3, 12

Section 7.2 - Converse to The Pythagorean Theorem

Pythagorean Triples: A set of three positive integers that satisfy the equation $a^2 + b^2 = c^2$.

Common Triples:

3, 4, 5

5, 12, 13

8, 15, 17

7, 24, 25

Multiples of the Triples also work: